Astronomy is a general education course designed to assist students in the development of critical life skills. One of the goals of this assignment is to assess student competence for each of these objectives:

I. Written and Oral Communication — present astronomical information using effective written and/or oral communications.

II. Critical Analysis and Reasoning — use astronomical data and scientific methods, individually and collaboratively, to solve problems involving astronomical topics.

III. Technological Competence -- explain how results from various observational technologies are used to develop theoretical models of celestial objects.

IV. Information Literacy — find, evaluate, use, and document informational resources to research astronomical topics.

V. Scientific and Quantitative or Logical Reasoning — manipulate and present data numerically and graphically.

In addition to the above general education objectives, this assignment assesses students’ understanding and application of the following skills and knowledge specific to astronomy:

- choose appropriate astronomical terms to describe the features and natures of astronomical objects.

**ASSIGNMENT:**

**Purpose:** The Project is designed to verify your ability to:

- Arrange astronomical concepts in a logical order
- Defend answers with complete well reasoned explanations using proper vocabulary and evidence
- Apply the correct resources to solve assigned tasks

**Audience:** This assignment must be written so that a fellow astronomy student could understand the explanations.

**SUBMISSION GUIDELINES:**

- Due by the 14th week of the current semester. Please see Syllabus for section specific due date.
- Hard copy or electronic version may be handed in. Please see Syllabus for section specific instructions.
- Please submit TWO copies. One copy should include your student ID, course number and section; it should omit student and faculty names.
Astronomy 101
Ranking Task Writing Project

A basic skill required of Astronomy students is to be able to effectively compare the relative size of astronomical objects. This is termed a Ranking Task. Astronomical objects are measured in a variety of ways which give different types of data which are then used to estimate size with varying degrees of accuracy. In this assignment, faculty ask students to rank, by size, a series of related astronomical bodies (for example planets or types of stars) and provide well researched evidence for their rankings.

Faculty will assign between 5 – 15 of these Ranking Task activities, which collectively become 10% of the course grade. All Ranking Task activities are collected as a portfolio at week 14 of the semester.

Directions:

Part 1: Ranking Task Activities

Students will complete the assigned ranking tasks. Completion of the assignment includes ranking the items as well as providing an explanation to defend the order of the items. This assignment will be handed in as a word document and your answers for each ranking task will take the form as given below:

• Give the name of the ranking task including exercise number.
• Rank the astronomical aspects in the order as indicated by the ranking task directions (See attached examples.)
• Give a brief defense of the order that was chosen in at least one well written paragraph.
  - The explanation must be in complete sentences using appropriate astronomical vocabulary properly.
  - Any resources used in the process of this assignment must be cited properly in APA or MLA format. In-text citations include both quoted and paraphrased material.

Part 2: Equipment Description & Evaluation

For two - four the assigned subject areas of the ranking tasks (e.g. Doppler Shift, Stellar Evolution) the student will describe one piece of equipment used to gather the astronomical data provided in the ranking task and the current limitations of that piece of equipment. A complete answer will, including the characteristics given below in a well-written paragraph.

• Describe the components of the equipment
• Describe how the equipment works
• Describe the limitations of the equipment
• Any resources used in the process of this assignment must be cited properly including in-text citations in APA or MLA format. In-text citations include both quoted and paraphrased material.

ASSIGNMENT SPECIFICATIONS:

These activities will be turned in as a portfolio in the following format:

Students will organize Ranking Tasks by Subject Area and include ranking and explanation paragraph of that ranking by Exercise number in order.

For Example:

Doppler Shift:
Exercise #1
A: Ranking Order
B. Explanation

Exercise #2
A: Ranking Order
B. Explanation

Doppler Shift Equipment Description & Evaluation

Stellar Evolution:
A: Ranking Order
B. Explanation

Exercise #2
A: Ranking Order
B. Explanation

Stellar Evolution Equipment Description & Evaluation

• All parts of the Assignment must be typed in Times New Roman 12-pt font, double-spaced with 1” margins.
• MLA or APA style format and documentation for parenthetical citations and a Works Cited page.
• A minimum of 5 scholarly sources is required (Use the library and not Wikipedia).

GRADING:
• This assignment will account for 10% of the total course grade.
• See attached rubric for details about how your essay will be graded